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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/543,612	04/05/00	CUNNINGHAM	B DR-308J
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EXAMINER

CHAPMAN JR, J

ART UNIT

PAPER NUMBER

2856

5

DATE MAILED: 09/17/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/543,612

Applicant(s)

CUNNINGHAM et al.

Examiner

CHAPMAN

Art Unit

2856



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 5, 2001
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above, claim(s) 12-14, 20, and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 15-19, 22, and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 20) ☐ Other:

DETAILED ACTION

1. Applicant's election of the species of Fig. 7 in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 12-14 and 20-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

2. The disclosure is objected to because of the following informalities: Page 11, line 2, "it" should be deleted. Appropriate correction is required.

3. The following is a quotation of the first and second paragraphs of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 23 comprises a single means claim, namely, every conceivable structure (means) for measuring a change of mass of a substance within the subnanogram range. See MPEP 2164.08(a).

5. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is insufficient antecedent basis for the limitation "said microprocessor" in lines 1-2.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 5, 7-8, 15, 17-18 and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by White et al. (5,218,988).

White et al. discloses a sensor for measuring the mass of a substance on a membrane (col. 11, line 61-68).

Regarding claim 2, White et al. discloses a plate wave resonator in Fig. 11a having a membrane layer 111 whose resonant frequency is determined by the properties of the surrounding environment, including the mass of a loading fluid.

Regarding claim 5, feedback amplifier 25 in Fig. 1 comprises an oscillator device for driving membrane 22 at a resonant frequency, a frequency counter 27 comprises a frequency detection device.

Regarding claims 8, 18 and 22, White et al. teaches use in an evaporation system (col. 11, line 68 to col. 12, line 4), which would appear to involve depositing a volume of volatile solution on the membrane and allowing the solution to evaporate.

9. Claims 4, 6 and 23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over White et al. ('988).

Regarding claim 4, White et al. teaches providing a plurality of transducers 109 (col. 15, line 9). The transducers appear to be piezoelectric and, if not, it would have been obvious to provide transducers comprising a piezoelectric layer 46 in Fig. 4.

Regarding claim 6, White et al. provides a gel 100 in Fig. 12 and fluid 115 in Fig. 17. It would appear necessary that the walls peripheral to membrane 22 form a cavity in order to confine the gel and/or fluid to the membrane, and, if not, it would have been obvious to form a cavity in order to confine the gel and/or fluid.

Regarding claim 23, the apparatus of White et al. appears to inherently be capable of measuring a change of mass of a substance within the subnanogram range, and, if not, merely to increase the range of sensitivity of the device would have been obvious.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. ('988).

It is well known in the art, and would have been obvious, to provide a means to display the mass of the substance.

11. Claims 8-10, 18-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. as applied to claims 1 and 17 above, and further in view of Bowers.

The only difference between the claimed invention and the prior art consists in using the apparatus of White et al. to determine the concentration of a non-volatile residue. Bowers teaches providing a known volume of liquid 55 in Fig. 7 on SAW resonator 52 in order to measure the level of non-volatile residue in the liquid. It would have been obvious in view of Bowers to provide a known volume of a liquid on the sensor of White et al. in order to measure the level of non-volatile residue in the liquid.

Regarding claim 22, Bowers teaches depositing a volatile solution on the resonator. Note col. 12, lines 18-28.


12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. as applied to claim 1 above, and further in view of Ballato.

The only difference between the claimed invention and the prior art consists in providing an array of sensors. Ballato teaches providing an array of sensors in order to sense the presence of a plurality of chemical agents. It would have been obvious in view of Ballato to provide an apparatus comprising an array of sensors of White et al. in order to sense the presence of a plurality of chemical agents.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Martin et al. discloses a flexural plate wave apparatus.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Chapman whose telephone number is (703) 305-4920.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.


JOHN E. CHAPMAN
PRIMARY EXAMINER